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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/516,522	11/30/2004	Armando Annunziato	23113	4483

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EXAMINER	
RAMPURIA, SHARAD K	
ART UNIT	**PAPER NUMBER**
2617	

MAIL DATE	DELIVERY MODE
11/14/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/516,522	ANNUNZIATO ET AL.	
	Examiner	Art Unit	
	Sharad Rampuria	2617	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *21 August 2007*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-3,5-13 and 15-25* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-3,5-13 and 15-25* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *21 August 2007* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

I. The Art Unit location of this application in the USPTO has changed. To aid in correlating any papers for this application, all further correspondence regarding this application should be directed to Art Unit 2617.

Disposition of the claims

II. The current office-action is in response to the application filed on 11/30/2004.

Accordingly, Claims 1-3, 5-13, 15-25 are imminent for further assessment as follows:

Claim Rejections - 35 USC § 103

III. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time

a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1-3, 5-13, 15-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Moilanen** [US 20030096622] in view of **Belcea** [US 6728545].

As per claim 1, **Moilanen** teaches:

Method for locating a mobile terminal (MS, MS2, . . .) within a mobile communication network comprising at least one base station (BTS1, BTS2, . . . BTSn), the method comprising the steps of:

Measuring of a set of physical dimensions that identify, according to respective functions, locating co-ordinates (x, y, z) of said mobile terminal, (Abstract, ¶ 0034-0036) characterized in that it comprises

Generating, starting from said set of physical dimensions and respective functions, a global locating error function (.phi.), which has a minimum for values of, said locating co-ordinates (x, y, z) corresponding with the position occupied by said mobile terminal, (e.g. RD; ¶ 0046, 0049-0057, and supported by 0012)

Seeking the minimum of said error function (.phi.) by varying at least one of said locating co-ordinates (x, y, z), and locating said mobile terminal in correspondence with the value of said at least one locating co-ordinate corresponding to said minimum. (e.g. RD; ¶ 0046, 0059, and supported by 0020)

Moilanen doesn't teach specifically, global error function being the difference between the dimensions included in said set and zero. However, **Belcea** teaches in an analogous art, that said global error function being the difference between the dimensions included in said set and zero. (e.g. in accordance with Gauss's postulate, the most probable position of the mobile station E(x, y, z) is the one that minimizes the value of the E(x, y, z) function. In the point (x, y, z) where the function E(x, y, z) has the minimum value, all partial derivative must be zero. After writing the equations for finding the point where the derivative are zero and considering linear approximations of the quadratic equations; Col.7; 24-32) Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to modify **Moilanen** including global error function being the difference between the dimensions included in said set and zero in order to provide estimated distances to a plurality of terrestrial reference terminals using **error minimizing techniques**.

As per claim 2, **Moilanen** teaches:

Method as claimed in claim 1, characterised in that said set of physical dimensions comprises at least a dimension selected within the group constituted by: signal power received by said mobile terminal starting from said at least one base station, Timing Advance (TA), Observed Time Differences (OTD), and Time of Arrival (TOA). (e.g.; ¶ 0061, 0067, and supported by 0008)

As per claim 3, **Moilanen** teaches:

Method as claimed in claim 1 or 2 characterised in that the measuring step comprises the step of performing measurements able to identify at least a value of position or distance with determined precision. (e.g.; ¶ 0068)

As per claim 5, **Moilanen** teaches:

Method as claimed in claim 1, 2 or 3, characterised in that said global error is defined as the mean square error of the dimensions of said set. (e.g. least square error; Col.7; 24-32)

As per claim 6, **Moilanen** teaches:

Method as claimed in any of the previous claims, characterised in that said global error function (.phi.) is obtained starting from a plurality of dimensions of said set. (e.g.; ¶ 0036, 0059)

As per claim 7, **Moilanen** teaches:

Method as claimed in claim 1, 2 or 3, characterised in that said set comprises one single dimension, so that said global error function (.phi.) is generated starting from the single dimension of said set. (e.g.; ¶ 0035)

As per claim 8, **Moilanen** teaches:

Method as claimed in any of the previous claims, characterised in that it comprises, to seek said minimum, the execution of an iterative process evaluating of said global error function for different values of said at least one location co-ordinate (x.sub.0, y.sub.0, z.sub.0 . . . ; x.sub.n, y.sub.n, z.sub.n) corresponding to successive different points of the space covered by

said communication network. (e.g.; ¶ 0048, 0059, and supported by 0006)

As per claim 9, **Moilanen** teaches:

Method as claimed in claim 8, characterised in that it comprises the step of interrupting said iterative process when the absolute distance between two successive points is below a determined threshold value. (e.g.; ¶ 0063)

As per claim 10, **Moilanen** teaches:

Method as claimed in any of the previous claims, characterised in that it is applicable in a three-dimensional reference system. (e.g.; ¶ 0059, and supported by 0006)

As per claim 11, **Moilanen** teaches:

System for locating a mobile terminal (MS1, MS2, . . .) within a mobile communication network comprising at least one base station (BTS1, BTS2, . . . BTSn), the system comprising at least a locating module (e.g. 18; Fig.1, ¶ 0066) configured to measure a set of physical dimensions that identify according to respective functions location co-ordinates (x, y, z) of said mobile terminal, (Abstract, ¶ 0034-0036) characterised in that said locating module (e.g. 18; Fig.1, ¶ 0066) is configured to:

Generate, starting from said set of physical dimensions and respective functions, a global locating error function (.phi.) which allows a minimum for values of said locating co-ordinates (x, y, z) corresponding with the position occupied by said mobile terminal, (e.g. RD; ¶ 0046, 0049-0057, and supported by 0012)

Seek the minimum of said error function (.phi.) varying at least one of said locating co-ordinates (x, y, z), and locate said mobile terminal in correspondence with the value of said at least one locating co-ordinate (x, y, z) corresponding to said minimum. (e.g. RD; ¶ 0046, 0059, and supported by 0020)

Moilanen doesn't teach specifically, global error function being the difference between the dimensions included in said set and zero. However, **Belcea** teaches in an analogous art that said global error function being the difference between the dimensions included in said set and zero. (e.g. in accordance with Gauss's postulate, the most probable position of the mobile station E(x, y, z) is the one that minimizes the value of the E(x, y, z) function. In the point (x, y, z) where the function E(x, y, z) has the minimum value, all partial derivative must be zero. After writing the equations for finding the point where the derivative are zero and considering linear approximations of the quadratic equations; Col.7; 24-32)

Claims 12-13, 15-20 are the, **system** claims, corresponding to **method** claims 2-3, 5-10 respectively, and rejected under the same rational set forth in connection with the rejection of claims 2-3, 5-10 respectively, above.

As per claim 21, **Moilanen** teaches:

System as claimed in any of the claims from 11 to 20, characterised in that it further comprises a module to allow the exchange of data between said mobile terminal and said at least one base station to identify at least one dimension of said set. (SGSN; ¶ 0037, 0040)

As per claim 22, **Moilanen** teaches:

Mobile terminal configured for use in a system as claimed in any of the claims from 11 to 21, characterised in that the terminal comprises at least part of said locating module (PCF) integrated in the mobile terminal itself. (e.g. 18; Fig.1, ¶ 0066)

As per claim 23, **Moilanen** teaches:

Software product able to be loaded directly into a memory of a digital computer associated with a mobile terminal (MS1, MS2, . . .) as claimed in claim 22 and comprising portions of software code able to implement said at least part of said locating module (e.g. 18; Fig.1, ¶ 0066) integrated in the mobile terminal itself when said software product is run on said digital computer. (e.g. 18; Fig.1, ¶ 0066)

Claim 24 is the, communication network claims, corresponding to **method** claim 1 respectively, and rejected under the same rational set forth in connection with the rejection of claim 1 respectively, above.

Claim 25 is rejected under 35 U.S.C. 103(a) as being unpatentable over **Moilanen** & **Belcea** further in view of **Karr, Jr. et al.** [US 20010022558] *hereinafter* **Karr**.

As per claim 25, the above combination teaches all the particulars of the claim except communication network as claimed in claim 24, characterised in that it comprises an interface

module (GW) for interfacing with an IP network, said interface module being configured in such a way as to allow the transfer of at least one between: an order to locate one of said mobile terminals starting from a source (U) connected to said IP network, and a delivery information generated by a source (U) connected to said IP network, directed to said mobile terminals (MS1, MS2, . . .) and referred to the location of at least one of said mobile terminals. However, **Karr** teaches in an analogous art, that communication network as claimed in claim 24, characterised in that it comprises an interface module (GW) for interfacing with an IP network, said interface module being configured in such a way as to allow the transfer of at least one between: an order to locate one of said mobile terminals starting from a source (U) connected to said IP network, and a delivery information generated by a source (U) connected to said IP network, directed to said mobile terminals (MS1, MS2, . . .) and referred to the location of at least one of said mobile terminals. [Please refer to IP; ¶ 0247] Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to modify the above combination including communication network as claimed in claim 24, characterised in that it comprises an interface module (GW) for interfacing with an IP network, said interface module being configured in such a way as to allow the transfer of at least one between: an order to locate one of said mobile terminals starting from a source (U) connected to said IP network, and a delivery information generated by a source (U) connected to said IP network, directed to said mobile terminals (MS1, MS2, . . .) and referred to the location of at least one of said mobile terminals in order to provide a system and method for locating a wireless mobile station using a plurality of simultaneously activated mobile station location estimators.

Response to Amendments & Remarks

IV. Applicant's arguments with respect to claims 1-3, 5-13, 15-25 has been fully considered but is moot in view of the new ground(s) of rejection.

Conclusion

V. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sharad Rampuria whose telephone number is (571) 272-7870. The examiner can normally be reached on M-F. (8:30-5 EST).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, George Eng can be reached on (571) 272-7495. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000 or *EBC@uspto.gov*.

/Sharad Rampuria/
Patent Examiner
Art Unit 2617